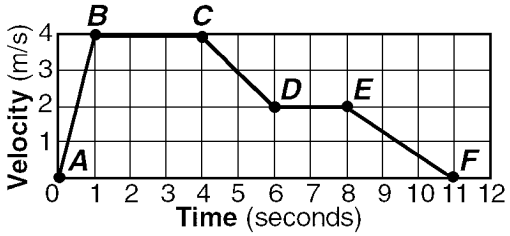
1) A 0.10-kilogram ball dropped vertically from a height of 1.0 meter above the floor bounces back to a height of 0.80 meter. The mechanical energy lost by the ball as it bounces is approximately

A) 0.78 J B) 0.20 J C) 0.30 J D) 0.080 J

Question 2 refers to the following:

The graph below represents the velocity-time relationship for a 2.0-kilogram mass moving along a horizontal frictionless surface.



2) The kinetic energy of the mass is *greatest* during interval

A) *BC* B) *CD* C) *DE* D) *AB*

3) A 10.-kilogram object and a 5.0-kilogram object are released simultaneously from a height of 50. meters above the ground. After falling freely for 2.0 seconds, the objects will have different

A) kinetic energies B) displacements C) accelerations D) speeds

4) A 20.-kilogram object strikes the ground with 1,960 joules of kinetic energy after falling freely from rest. How far above the ground was the object when it was released?

A) 14 m B) 200 m C) 98 m D) 10. m

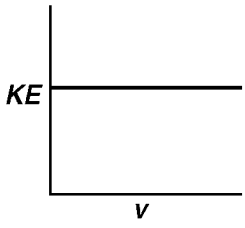
5) An object with a speed of 20. meters per second has a kinetic energy of 400. joules. The mass of the object is

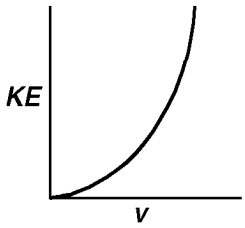
A) 0.50 kg B) 1.0 kg C) 40. kg D) 2.0 kg

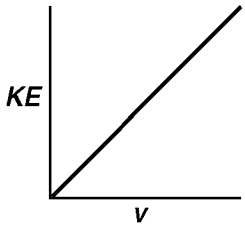
6) What is the energy equivalent of a mass of 1 kilogram?

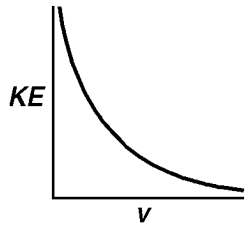
A) 9×10^7 J B) 9×10^{13} J C) 9×10^{16} J D) 9×10^{10} J

7) Which graph *best* represents the relationship between the kinetic energy (*KE*) of a moving object as a function of its velocity (*v*)?

A)


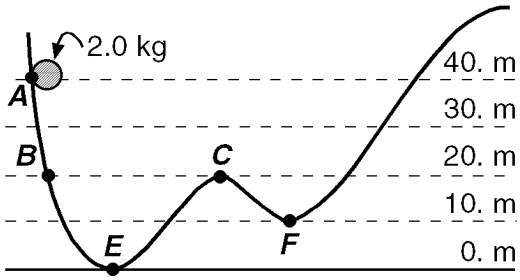
B)


C)


D)


Questions 8 through 10 refer to the following:

The diagram below represents a 2.0-kilogram mass placed on a frictionless track at point *A* and released from rest. Assume the gravitational potential energy of the system to be zero at point *E*.



8) The gravitational potential energy of the system at point *A* is approximately

A) 7.0×10^2 joules B) 20. joules C) 8.0×10^2 joules D) 80. joules

9) Compared to the kinetic energy of the mass at point *B*, the kinetic energy of the mass at point *E* is

A) twice as great B) 4 times greater C) the same D) as great

10) If the mass were released from rest at point *B*, its speed at point *C* would be

A) 10. m/sec B) 0.50 m/sec C) 14 m/sec D) 0 m/sec